ASSIGNMENT 5

Textbook Assignment: "Communications and Lighting," chapter 6, pages 6-1 through 6-22.

5-1. Before installing a public address system, you should refer to which of the following publications and/or guidance?

1. National Electric Code®
2. Manufacturers' recommendations
3. Both 1 and 2 above

5-2. What voltage source is required for a solid-state amplifier?

1. 24 V
2. 48 V
3. 120 V
4. 220 V

5-3. From the following factors, which one(s) is/are important when matching speakers and amplifiers?

1. Both should fit in the console
2. Voltage input must be the same
3. Speaker impedance and amplifier output impedance should match
4. Both require low frequency

5-4. Circuit protection for an amplifier is accomplished by internally wiring a circuit breaker to the amplifier.

1. True
2. False

5-5. What condition exists when you mismatch speakers and amplifiers?

1. It overloads the amplifier and may damage the speakers
2. It overloads the speakers and may damage the amplifier
3. It increases the power delivered to the speakers
4. It decreases the power delivered to the speakers

5-6. What condition exists when installed speakers are out of phase?

1. One speaker increases in volume and both speakers tone quality improves
2. Both speakers increase in volume and the tone quality improves
3. Both speakers lose volume and the tone quality is degraded
4. One speaker loses volume and the tone quality is degraded; the other speaker improves in tone quality

5-7. When speakers are facing in the same direction, what method of connection results in the speakers being in phase?

1. - to + and + to -
2. + to + and - to -
3. + to - and - to +
4. + to - and + to -

5-8. What causes a hum or makes the amplifier oscillate in a complex public address system?

1. Stray current is fed back to the amplifier
2. Inconsistent voltage supply
3. Inadequate voltage supply
4. Excessive voltage supply

5-9. Which of the following problems often causes a public address system to operate poorly?

1. A loose connection
2. A broken wire
3. A faulty soldering joint
4. Each of the above

5-10. A basic intercom system consists of which of the following configurations?

1. Signaling-master
2. All-master
3. Single-master multiple remote
4. Both 2 and 3 above

5-11. A master station and remote station may be combined as long as the capacity of which of the following stations is not exceeded?

1. Master
2. Remote
3. Either 1 or 2 above

5-12. In installing an intercom system, you should be most concerned with which of the following wire installation requirements?

1. Using only solder connections
2. Length of wiring cable
3. Cable not exceeding permissible resistance
4. Individually color coding each wire

5-13. What optical waveguide medium is preferred for fiber-optic research?

1. Glass fibers
2. Gas-filled pipes
3. Laser beams
4. Tubes with focusing lenses

5-14. What is the purpose of a light-emitting diode?

1. It bends the light source
2. It launches light into the fiber
3. It measures the light rays
4. It changes the light color

5-15. Which of the following factors is/are NOT an advantage of fiber-optic cable?

1. It is smaller and weighs less than electrical conductors
2. It is less expensive than other cable
3. It has increased bandwidth and capacity
4. It is free of short circuits and sparks

5-16. In an optical fiber, the cylindrical dielectric rod is immediately surrounded by which of the following optical fiber parts?

1. Buffer
2. Cladding
3. Coating
4. Core

5-17. Which of the following materials is NOT an outstanding conductor of electricity?

1. Copper
2. Dielectric
3. Steel
4. Water

5-18. Which of the following types of optical fiber parts reduces loss of light from the core of optical fibers?

1. Buffer
2. Coating
3. Cladding
4. Both 2 and 3 above

5-19. Which of the following types of optical fiber parts protects the optical fibers from physical damage?

1. Buffer
2. Coating
3. Both 1 and 2 above
4. Cladding

5-20. Fiber-optic cables are not affected by static fatigue.

1. True
2. False

5-21. A fiber-optic data link performs which of the following functions?

1. It converts an electrical input signal to an optical signal
2. It sends an optical signal over an optical fiber
3. It converts an optical signal back to an electrical signal
4. Each of the above

5-22. Which of the following components perform(s) the basic function of the fiber-optic data link?

1. Transmitter
2. Optical fiber
3. Receiver
4. Each of the above

5-23. Which of the following splicing methods is/are used for fiber-optic cable?

1. Cadweld
2. Mechanical
3. Fusion
4. Both 2 and 3 above

5-24. Fiber-optic connections are sensitive to which of the following factors?

1. Temperature
2. Moisture
3. Dust
4. None of the above

5-25. Which of the following types of fiber-optic connectors is/are used to connect fiber-optic cable?

1. Butt-jointed
2. Expanded-beam
3. Both 1 and 2 above
4. Solderless crimp

5-26. What fiber-optic component allows the redistribution of optical signals?

1. Coupler
2. Ring
3. Collector
4. Distributor

5-27. What type of device redistributes an optical signal without optical-to-electrical conversion?

1. Passive coupler
2. Active coupler
3. Fiber-optic collector
4. Fiber-optic distributor

5-28. What type of device splits or combines a signal electrically and uses fiber-optic detectors and sources for input and output?

1. Passive coupler
2. Active coupler
3. Fiber-optic collector
4. Fiber-optic distributor

5-29. What FAS standard abbreviation designates candlepower luminous intensity?

1. e d
2. d c
3. c p
4. p c

5-30. A lumen unit is equal to what amount of power, in watts?

1. .00015
2. .0015
3. .015
4. .15

5-31. Whenever HID lamp resistance decreases, lamp heat increases.

1. True
2. False

5-32. Which of the following lamps is/are an HID light source?

1. Mercury
2. Metal-halide
3. High-pressure sodium
4. Each of the above

5-33. What device prevents HID lamp current from increasing indefinitely?

1. A film-disk cutout
2. An accelerator limiter
3. A ballast
4. A ground

5-34. In the construction of an HID lamp, which of the following materials may be added to the arc tube?

1. Sodium
2. Mercury
3. Metal halide
4. Each of the above

5-35. A high-pressure mercury lamp inner-arc tube is made of what material?

1. Copper
2. Lead
3. Mercury
4. Quartz

5-36. Mercury lamps used for lighting fall into what wattage range?

1. 15 to 175
2. 35 to 400
3. 40 to 1,000
4. 175 to 1,500

5-37. Which of the following lamps has the highest light-producing efficiency?

1. Mercury vapor
2. Sodium
3. Fluorescent
4. Incandescent

5-38. To aid in starting, the arc tubes of high-pressure sodium lamps are filled with what gas or vapor?

1. Argon
2. Sodium
3. Mercury
4. Xenon

5-39. A metal-halide lamp is more efficient than a mercury lamp by what percentage?

1. 10%
2. 20%
3. 30%
4. 50%

5-40. Which of the following HID lamps has the best lumen-maintenance characteristic?

1. Mercury
2. Metal-halide
3. High-pressure sodium

5-41. What is the rated life expectancy of a 3 5 -watt high-pressure sodium lamp?

1. 1,000 hours
2. 10,000 hours
3. 16,000 hours
4. 24,000 hours

5-42. What material coats the inside of a fluorescent tube and gives off light when bombarded by electrons?

1. Mercury
2. Phosphor
3. Sodium
4. Silver

5-43. An HID lamp ballast is used for which of the following purposes?

1. To control lamp current
2. To provide sufficient voltage
3. To match lamp voltage to line voltage
4. Each of the above

5-44. What type of lamp has an end-of-life characteristic that matches this statement? “End-of-life results from a change in the electrical characteristic when the ballast can no longer sustain the lamp.”

1. Fluorescent
2. Mercury
3. Metal halide
4. High-pressure sodium

5-45. What type of lamp has an end-of-life characteristic that matches this statement? "End-of-life results from blackening of the arc tube that is caused by electrode deterioration."

1. Fluorescent
2. Mercury
3. Metal halide
4. High-pressure sodium

5-46. What type of lamp has an end-of-life characteristic that matches this statement? "End-of-life results when an aging lamp requires more voltage to stabilize and operate than the ballast is able to provide."

1. Fluorescent
2. Mercury
3. Metal halide
4. High-pressure sodium

5-47. A light fixture serves which of the following purposes?

1. It holds the lamp
2. It prevents damage to the lamp
3. It directs the light beam
4. Each of the above

5-48. A series lighting circuit with an autotransformer for stepping up the current to 15 or 20 amperes provides which of the following additional advantages?

1. It permits the use of rugged lamp filaments
2. It gives longer life to the lamps
3. It provides higher lamp efficiency
4. Each of the above

5-49. A series streetlight system is powered by a constant-current regulator that usually supplies what amount of amperes?

1. 5.6
2. 6.6
3. 15.0
4. 20.0

5-50. What device is used in a series lighting circuit to prevent circuit failure from a burned out filament?

1. Film-disk cutout
2. Cycle starter
3. Restrike starter
4. Ballast

5-51. When a filament of a lamp burns out, the entire circuit voltage appears across the film-disk, thereby puncturing the disk and causing the circuit to continue bypassing the burned-out filament.

1. True
2. False

5-52. Which of the following methods of installation of series lighting circuits is used on a one-wire circuit?

1. All the lamps are connected on the outgoing wire
2. All the lamps are connected on the return wire
3. All the lamps are connected in a closed-loop circuit
4. All the lamps are connected in an open-loop circuit

5-53. What advantage is gained when you combine an open-loop and a closed-loop circuit?

1. They are less expensive to construct
2. They are less expensive to maintain
3. They are easier to troubleshoot
4. They are more economical to operate

5-54. You can identify a series streetlight circuit quickly by which of the following features?

1. Wiring is a different color than that of the primary distribution system
2. White insulators are used to identify wiring
3. Wiring is always the lowest base wire on the utility pole

5-55. Constant-current regulators should be protected by lighting arresters on what side(s) of overhead circuits?

1. Primary
2. Secondary
3. Both 1 and 2 above

5-56. The primary and secondary windings of a constant-current transformer are stationary.

1. True
2. False

5-57. Which of the following sizes of regulators is mounted on a platform?

1. 0.5 to 5 kilovoltamperes
2. 6.0 to 10 kilovoltamperes
3. 11.0 to 19 kilovoltamperes
4. 20.0 kilovoltamperes and larger